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IS 9859-2 (1982): Code of practice for installation and maintenance of outdoor PLC equipment, Part 2: Coupling devices [LITD 10: Power System Control and Associated Communications]



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“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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(Reaffirmed 2006)

Indian Standard

CODE OF PRACTICE FOR
INSTALLATION AND MAINTENANCE OF
OUTDOOR POWER LINE CARRIER EQUIPMENT
PART II COUPLING DEVICES

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MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Indian Standard

CODE OF PRACTICE FOR INSTALLATION AND MAINTENANCE OF OUTDOOR POWER LINE CARRIER EQUIPMENT

PART II COUPLING DEVICES

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Indian Standard

CODE OF PRACTICE FOR INSTALLATION AND MAINTENANCE OF OUTDOOR POWER LINE CARRIER EQUIPMENT

PART II COUPLING DEVICES**0. FOREWORD**

0.1 This Indian Standard (Part II) was adopted by the Indian Standards Institution on 22 November 1982, after the draft finalized by the Power Line Carrier Systems and Associated Telecontrol Equipment Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

0.2 This standard (Part II) is intended to serve as a guide to installation engineers, contractors and users of power line carrier equipment, so far as coupling devices are concerned.

0.3 In view of the consideration that this code is required to be in conformity with the prevailing practices in the country, considerable assistance has been derived from the Indian Electricity Rules (1956). Reference to the relevant provisions of the Indian Electricity Rules (1956) has, therefore, been made in appropriate places with a view to bringing to the notice of the installation and/or maintenance engineer(s) the statutory regulations concerning this work.

0.4 This standard (Part II) covers installation and maintenance of coupling devices. The other parts in this series are given below:

Part I Line traps

Part III Coupling capacitor/CVT

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Rules for rounding off numerical values (revised).

1. SCOPE

1.1 This standard (Part II) covers installation and maintenance of coupling devices generally used in outdoor installations.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 8997-1978* shall apply.

3. EXCHANGE OF INFORMATION

3.1 Before ordering the coupling devices, information should be exchanged between the owner, switchyard designer, design engineer, installation engineer, maintenance engineer and manufacturer, so that the coupling device is procured to suit the duty, location and installation conditions under which it will operate.

3.1.1 The technical particulars of the coupling device should be checked to ensure its suitability with respect to bandwidth and power handling capacity.

3.2 The engineer should obtain well in advance all relevant information about the overall dimensions, weight for transport, installation, etc, of the coupling device. When the parts comprising the coupling device are separately packed, a packing list and drawings showing the assembly should be supplied to the user.

4. GENERAL REQUIREMENTS

4.1 The manufacturer should provide drawings and instructions for the installation and maintenance of the coupling device well in advance of the time of delivery. It is essential that the installation of the coupling device as well as its maintenance is performed in accordance with the instructions given by the manufacturer.

4.2 All electrical installations shall comply with the requirements of the Indian Electricity Act (1910) and Rules (1956) made thereunder.

4.3 If considered necessary, the local authorities concerned in the administration of the rules and regulations in the manner of layout of installation should be consulted in regard to the rules and regulations that may be applicable.

4.4 The installation shall be carried out only by authorized persons competent to undertake such work under the rules and regulations that may be in force in different states.

*Specification for coupling devices for PLC systems.

5. INSTALLATION

5.1 General — The installation shall be done in such a manner that maximum safety to operational and maintenance personnel is assured.

5.2 Arrangement

5.2.1 The drain coil, main arrester, matching transformer, isolating transformer and earthing switch are normally so constructed as to be suitable for outdoor mounting on the same pedestal structure which supports the coupling capacitor.

5.2.2 Angles, plates or strips of mild steel either bolted or welded to the coupling capacitor pedestal structure may be used for mounting the parts of the coupling device.

5.3.3 The method of mounting the coupling device should be such as to allow ease of operation, access for connections and inspection from ground level.

5.3 Electrical Connections to the Coupling Device

5.3.1 Special single core cable or bare stiff copper conductor strip may be used for all connections between the coupling device and the coupling capacitor and between the parts of the coupling device. The connecting cable should be able to withstand a voltage of 5 kV (rms) for 1 minute. Carrier frequency cables may be used to connect the coupling device to the powder line carrier terminals.

5.3.1.1 The size of the round conductor shall be 5 mm (dia), *Min* and rectangular strip 25 × 1.6 mm, *Min*.

5.3.2 Direct connection shall be given from the low voltage terminal of the coupling capacitor/CVT to the earthing switch.

5.3.3 The minimum clearances of the bare copper conductor/strip from the earthed structures shall be based on **4.2.1** of IS : 8997-1978*.

5.3.4 It should be ensured that all copper conductor/strip connections are properly tinned by brazing stove. After cooling, the copper strip may be painted. The connecting leads should be as short as possible.

6. MAINTENANCE

6.1 Periodic inspection of the connections and cleaning are recommended.

6.2 Tightness of waterproof joints should be checked.

6.3 At the time of maintenance on the coupling device, low voltage terminal of the coupling capacitor/CVT shall be effectively earthed.

*Specification for coupling devices for PLC systems.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	$N = 1 \text{ kg.m/s}^2$
Energy	joule	J	$1 \text{ J} = 1 \text{ N.m}$
Power	watt	W	$1 \text{ W} = 1 \text{ J/s}$
Flux	weber	Wb	$1 \text{ Wb} = 1 \text{ V.s}$
Flux density	tesla	T	$1 \text{ T} = 1 \text{ Wb/m}^2$
Frequency	hertz	Hz	$1 \text{ Hz} = 1 \text{ c/s (s}^{-1}\text{)}$
Electric conductance	siemens	S	$1 \text{ S} = 1 \text{ A/V}$
Electromotive force	volt	V	$1 \text{ V} = 1 \text{ W/A}$
Pressure, stress	pascal	Pa	$1 \text{ Pa} = 1 \text{ N/m}^2$